## Worksheet answers

# Part 1: Creating a food web

1. What do we do with energy we get from food?

We use it to keep our bodies functioning. Energy is needed all the time for functions like breathing, growing, repairing cells and digesting food. We also use energy to move.

1. Which animals in your food web are:
   1. carnivores?

Kimberley freshwater crocodile, green tree frog, yellow spotted monitor, northern quoll, rainbow bee-eater, straw necked ibis

Herdsman Lake swamp harrier, tiger snake, motorbike frog, gambusia, spoonbill, dragonfly nymph

Cottesloe Reef grey nurse shark, sea lion, octopus, seastar, stingaree, pelican, weedy sea dragon, dolphin

* 1. herbivores?

Kimberley cicada

Herdsman Lake water flea, coot

Cottesloe Reef abalone, scallop, shrimp

* 1. omnivores?

Kimberley meat ants

Herdsman Lake purple swamphen, black duck

Cottesloe Reef scalyfin fish, crab, lobster

1. Why are all animals called consumers?

They all consume (eat) other living things to get energy.

1. Why are plants called producers?

They all produce (make) their own food, using the sun’s energy, in a process called photosynthesis.

1. Why do arrows in food chains and food webs point towards the animal that is eating?

Arrows show the direction energy is moving. Energy goes from a species being eaten into animals that eat it.

1. What order consumer is each of these animals in your food web?

|  |  |  |
| --- | --- | --- |
| Kimberley | Herdsman Lake | Cottesloe Reef |
| cicada:  *first order* | water flea:  *first order* | brown-lipped abalone:  *first order* |
| rainbow bee-eater:  *second order* | motorbike frog:  *second order* | weedy seadragon:  second order |
| northern quoll:  *second, third or fourth order* | tiger snake:  *second, third or fourth order* | Australian sea lion:  Second, third order |
| freshwater crocodile:  *third, fourth or fifth order* | swamp harrier:  *third, fourth or fifth order* | Australian pelican:  third, fourth order |

1. Explain why some animals can be more than one order of consumer (e g meat ants, black duck and blue swimmer crab can be first order or second order consumers, or higher).

Food webs are made up of many interconnected food chains, and the position of an animal in a chain depends on which food chain is followed. For example, meat ants are first order consumers when they eat plants, or second order when they eat cicadas or native stingless bees.

# Part 2: Predicting effects of cane toads

1. What do cane toads eat?

Cane toads eat cicadas, native stingless bees, meat ants and baby rainbow bee-eaters. In rare circumstances they eat green tree frogs. In fact they’ll eat whatever they can fit into their mouths.

1. What effect would introduction of cane toads have on native organisms?

Native organisms would decrease in number if they are eaten by cane toads, or if they eat other organisms that have eaten cane toads.

1. What eats cane toads?

Cane toads are eaten by straw-necked ibises, yellow spotted monitors, freshwater crocodiles, northern quolls, frilled necked lizards, meat ants, occasionally green tree frogs and other animals not shown in this food web.

1. Cane toads contain poisons (bufotoxins) that kill most animals that try to eat them. What effect would introduction of cane toads have on the number of predators living in an area? Why?

The number of predators would decrease because they are poisoned and killed when they try to eat cane toads. A few species, which are immune, or develop immunity, to the poison, would increase in number.

1. Some animals (e g meat ants and many birds) are not affected by bufotoxins. What effect would cane toads have on the number of these animals in an area?

Numbers of meat ants and ibises would increase because they will have more food available.

1. How do you think introduction of cane toads might affect plants? Explain why.

It might increase plant growth because there would be fewer insects, such as cicadas, eating them. There might be a negative effect though because there would be fewer bees to pollinate flowering plants. Scientists are not sure yet.

1. Cane toads and green tree frogs don’t often eat each other, but arrival of cane toads in the Kimberley seems to have impacted on the number of green tree frogs. Why is this?

Cane toads and green tree frogs both like to eat insects. This means that they are competing for food, so there is less food available for green tree frogs to eat.

# Part 3: Predicting effects of a marine invader

1. What do Asian date mussels eat?

phytoplankton

1. What effect could introduction of Asian date mussels have on native herbivores?

Dense mats of mussels compete with native seagrass, algae and invertebrates for food and space. If the density of the mussel becomes too high, it can reduce the availability of food for herbivores.

1. What eats Asian date mussels?

Animals that usually eat clams and mussels, such as the striped stingaree, could eat Asian date mussels.

1. How do you think introduction of Asian date mussel might affect sea grass meadows? Explain why.

Date mussels can form dense mats (up to 150,000 individuals per square meter) on both soft and hard surfaces. Although it contains no poison, the date mussel is dangerous in ecosystems where it has been introduced. The dense mats of mussels compete with native seagrass, algae and invertebrates for food and space.

1. Asian date mussels and scallops don’t eat each other, but arrival of Asian date mussels seems to have reduced the number of scallops. Why is this?

Both scallops and Asian date mussels compete for the same food source: phytoplankton.